

**IN THE CLAIMS:**

Please add new claims 28-29 and amend the claims as follows:

1. (Currently Amended) A seismic acquisition system, comprising:  
a plurality of seismic data sources for generating seismic data;  
~~at least one a~~ data collection system utilizing an open network protocol;  
~~at least one line network connecting the seismic data sources to the data~~  
~~collection system via the open network protocol, the line network including:~~  
a plurality of data source nodes ~~at which,~~ wherein each data source node is  
coupled to a portion of the plurality of seismic data sources ~~is attached to the line~~  
~~network;~~ and  
a router coupled to a portion of the data source nodes and the data collection  
system, wherein the router is configured to for routing route the seismic data generated  
by the portion of the plurality of seismic data sources to the data collection system  
~~through the data source nodes in accordance with the open network protocol;~~  
~~a synchronization service for synchronizing a plurality of clocks for the data~~  
~~collection system, the router, the data source nodes, and the seismic data sources; and~~  
~~an auto-configuration capability for automatically reconfiguring the line network~~  
~~upon removal of any one of the router, the data source nodes, or the seismic data~~  
~~sources.~~
2. (Original) The seismic acquisition system of claim 1, wherein the router routes data to the seismic data sources.
3. (Original) The seismic acquisition system of claim 1, wherein each of the data source nodes is assigned at least two respective network addresses under the open network protocol.
4. (Original) The seismic acquisition system of claim 1, further comprising at least one additional router for routing data generated by the seismic data sources to the data

collection system through the data source nodes in accordance with the open network protocol.

5. (Original) The seismic acquisition system of claim 1, wherein the data collection system is assigned at least two respective network addresses under the open network protocol.

6. (Previously Presented) The seismic acquisition system of claim 1, wherein the line network comprises a land-based seismic cable or an ocean bottom cable.

7. (Original) The seismic acquisition system of claim 1, wherein the seismic data sources include at least one of seismic sources, seismic receivers, and positioning instruments.

8. (Original) The seismic acquisition system of claim 7, where in the seismic sources include at least one of an air gun, a vibrator, and an explosive charge.

9. (Withdrawn) The seismic acquisition system of claim 7, wherein the seismic receivers include at least one of a hydrophone and a geophone.

10. (Original) The seismic acquisition system of claim 1, wherein the open network protocol includes the Internet Protocol.

11. (Cancelled)

12. (Currently Amended) The seismic acquisition system of claim ~~[[1]]~~28, wherein the synchronization service comprises the Network Time Protocol.

13. (Previously Presented) The seismic acquisition system of claim 1, further comprising:

a location mapping service for generating a mapping between (a) network addresses of the data collection system, the router, the data source nodes and the seismic data sources and (b) physical locations of the data collection system, the router, the data source nodes and the seismic data sources; and

an auto-configuration capability for automatically reconfiguring the network upon the addition of an additional piece of seismic equipment.

14. (Cancelled)

15. (Currently Amended) The seismic acquisition network of claim [[1]]28, wherein the synchronization service tolerates changes in topology.

16. (Currently Amended) The seismic acquisition system of claim [[1]]28, wherein the synchronization service synchronizes the clocks hierarchically.

17. (Currently Amended) The seismic acquisition system of claim [[1]]28, wherein the synchronization service tolerates breaks in the attachment between at least one seismic data source and the line network.

18. (Withdrawn) The seismic acquisition system of claim 13, wherein the location mapping service maps: an order for the data collection system, the router, the data source nodes, and the seismic data sources; an orientation for each of the data collection system, the router, the data source nodes, and the seismic data sources; and a plurality of topology events.

19. (Withdrawn) The seismic acquisition system of claim 18, wherein the topology events include at least one of a link going up, a link going down, and a node address change.

20. (Withdrawn) The seismic acquisition system of claim 13, wherein the at least one data collection system comprises a plurality of data collection systems and the

synchronization service, the location mapping service, and the auto-configuration capability are administered by more than one of the plurality of data collection systems.

21. (Withdrawn) A method for use in a seismic survey, the method comprising:
- assigning at least two respective network addresses to each one of a plurality of seismic data sources, a plurality of data source nodes, a plurality of routers, and a data collection system;
  - routing data generated by the data sources through the data source nodes and the routers to the data collection system;
  - correlating the network addresses of the seismic data sources to the physical location of the respective seismic data sources; and
  - correlating the physical locations of the respective seismic data sources to the data generated by the respective seismic data sources.

22. (Withdrawn) The method of claim 21, wherein assigning the at least two respective network addresses to each one of a plurality of seismic data sources includes assigning at least two respective network addresses to each one of a plurality of seismic data sources including at least one of a seismic source, a seismic receiver, and a positioning instrument.

23. (Withdrawn) The method of claim 21, further comprising at least one of:
- synchronizing a plurality of clocks for the data collection system, the router, the data source nodes, and the seismic data sources;
  - mapping between network addresses and logical locations of the data collection system, the router, the data source nodes, and the seismic data sources; and
  - automatically reconfiguring the network upon removal of any one of the router, the data source nodes, or the seismic data sources, or upon the addition of an additional piece of seismic equipment.

24. (Withdrawn) The method of claim 23, wherein synchronizing the plurality of clocks includes synchronizing the clocks hierarchically.

25. (Withdrawn) The method of claim 23, wherein mapping between network addresses and logical locations of the data collection system includes: mapping an order for the data collection system, the router, the data source nodes, and the seismic data sources; mapping an orientation for each of the data collection system, the router, the data source nodes, and the seismic data sources; and mapping a plurality of topology events.

26. (Currently Amended) A seismic acquisition system, comprising:

a first line network having:

a first plurality of seismic data sources for generating seismic data,  
wherein each seismic data source is assigned at least two network addresses;

a first data collection system having at least two network addresses  
assigned thereto; and

a line network connecting the seismic data sources to the data collection  
system using an open network protocol, wherein the line network comprises:

a first plurality of data source nodes at which, wherein each data source  
node is coupled to a portion of the first plurality of seismic data sources via a first  
medium-bandwidth data path is attached to the line network, and wherein each  
data source node of the first plurality of data source nodes is assigned at least  
two network addresses; and

a first router coupled to a portion of the first plurality of data source nodes  
via the first medium-bandwidth data path and to the first data collection system  
via a high-bandwidth data path, wherein the first router is configured to for routing  
route the seismic data generated by the portion of the first plurality of seismic  
data sources to the first data collection system in accordance with an open  
network protocol through the data source nodes, and wherein the first router is  
assigned at least two network addresses.

27. (Previously Presented) The seismic acquisition system of claim 1, wherein each seismic data source is assigned at least two network addresses under the open network protocol.

28. (New) The seismic acquisition system of claim 1, further comprising:  
a synchronization service for synchronizing a plurality of clocks for the data collection system, the router, the data source nodes, and the seismic data sources; and  
an auto-configuration capability for automatically reconfiguring the line network upon removal of any one of the router, the data source nodes, or the seismic data sources.

29. (New) The seismic acquisition system of claim 26 further comprising:  
a second line network, wherein the second line network is coupled to the first line network via the high-bandwidth path and the second line network comprises:

a second plurality of seismic data sources for generating seismic data, wherein each seismic data source of the second plurality of seismic data sources is assigned at least two network addresses;

a second data collection system having at least two network addresses assigned thereto;

a second plurality of data source nodes, wherein each data source node of the second plurality of data source nodes is coupled to a portion of the second plurality of seismic data sources via a second medium-bandwidth data path, and wherein each data source node of the second plurality of data source nodes is assigned at least two network addresses; and

a second router coupled to a portion of the second plurality of data source nodes via the second medium-bandwidth data path, to the second data collection system via the high-bandwidth data path and to the first router via the high-bandwidth path, wherein the second router is configured to route the seismic data generated by the portion of the second plurality of seismic data sources to the second data collection system in accordance with the open network protocol, and wherein the second router is assigned at least two network addresses.